

# EUROPEAN PATENT OFFICE

## Patent Abstracts of Japan

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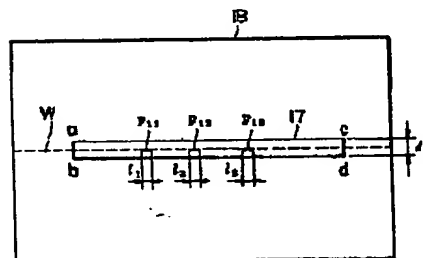
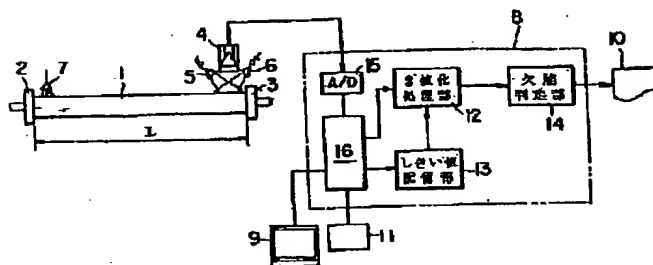
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TITLE : AUTOMATIC MAGNETIC PARTICLE  
INSPECTION APPARATUS OF  
SEAM-WELDED STEEL PIPE WELDED  
PART



**ABSTRACT :** PURPOSE: To obtain an automatic magnetic particle inspection apparatus by which the flaw of seam-welded steel pipe welded part is detected precisely and with high accuracy without detecting a flaw other than a welding flaw by applying fluorescent magnetic particles to an seam-welded steel pipe welded part, a welding line is specified by a picked-up image and an inspection region is limited.

**CONSTITUTION:** An seam-welded steel pipe 1 which has been set between electrodes 2, 3 is magnetized, a magnetic particle liquid is applied to the surface of a welded part, and an image signal which has been picked up by a TV camera 4 is sent to a signal processing device. The device 8 quantizes the image signal by an A/D converter 15, it divides one screen into a prescribed number of pixels, it computes the average brightness of every pixel line in the direction of a pipe axis on the basis of the brightness of every obtained pixels so as to be binarized (12) by a threshold value for detection of a welding line W which has been stored 13, it specifies the welding line W, and it sets a window 17 having a narrow up-and-down width  $\Delta y$  for the welding line W in four points (a) to (d). Then, the brightness of every pixel inside the window 17 is binarized 12 by a threshold value for detection of a welding flaw which has been stored 13, and welding flaws  $F_{11}$  to  $F_{13}$  inside the window 17 around the welding line W are displayed.

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